

Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1.-38. (Cancelled)

39. (Currently Amended) ~~A device in accordance with claim 38, An active monitoring device within a safety perimeter of a motor vehicle, for the detection of moving objects or static obstacles within said safety perimeter, comprising:~~

a first detector which has a first detection angle and a first radius of action, which covers a first detection zone that includes at least part of a blind angle of said vehicle, where said first detector transmits input signals to at least one data processing device that generates output signals suitable to activate warning means for the driver;

at least a second detector, which has a second detection angle and a second radius of action, which covers a second detection zone and forms, with said first detector, a group, with said first and at least one second detectors cooperate in order to cover a combined detection zone of said blind angle, which is enlarged with respect to that covered by the first detector and which forms a sector of said safety perimeter;

said first and at least one second detectors of said group share the same warning means that can be activated via the processing of the output signals from each one; and

at least one of said detectors is an optical camera capable of operation in the visible and/or infrared spectra,

wherein each of the cited detectors can be activated or not or perform differential processing on the captured information as a function of the vehicle's speed.

40. (Currently Amended) A device in accordance with claim 38~~39~~, wherein said first detector is oriented towards a side lane adjacent to said motor vehicle and said at least one second detector of said group, is oriented, at least partly, towards said same side lane and the area covered by said second detector extends towards the rear of the vehicle.

41. (Previously Presented) A device in accordance with claim 40, wherein said at least one data processing device operates by processing simultaneously and separately, each of said input signals.

42. (Currently Amended) ~~A device in accordance with claim 38, An active monitoring device within a safety perimeter of a motor vehicle, for the detection of moving objects or static obstacles within said safety perimeter, comprising:~~

a first detector which has a first detection angle and a first radius of action, which covers a first detection zone that includes at least part of a blind angle of said vehicle, where said first detector transmits input signals to at least one data processing device that generates output signals suitable to activate warning means for the driver;

at least a second detector, which has a second detection angle and a second radius of action, which covers a second detection zone and forms, with said first detector, a group, with said first and at least one second detectors cooperate in order to cover a combined detection zone of said blind angle, which is enlarged with respect to that covered by the first detector and which forms a sector of said safety perimeter;

said first and at least one second detectors of said group share the same warning means that can be activated via the processing of the output signals from each one; and

at least one of said detectors is an optical camera capable of operation in the visible and/or infrared spectra,

wherein said first detector, of said group, covers a blind angle that extends in front of the vehicle and extends towards a first side zone and said at least one second detector covers an area that extends to the front of the vehicle towards a second zone located on the opposite side of the vehicle.

43. (Previously Presented/Currently Amended) ~~A device in accordance with claim 38; An active monitoring device within a safety perimeter of a motor vehicle, for the detection of moving objects or static obstacles within said safety perimeter, comprising:~~

a first detector which has a first detection angle and a first radius of action, which covers a first detection zone that includes at least part of a blind angle of said vehicle, where said first detector transmits input signals to at least one data processing device that generates output signals suitable to activate warning means for the driver;

at least a second detector, which has a second detection angle and a second radius of action, which covers a second detection zone and forms, with said first detector, a group, with said first and at least one second detectors cooperate in order to cover a combined detection zone of said blind angle, which is enlarged with respect to that covered by the first detector and which forms a sector of said safety perimeter;

said first and at least one second detectors of said group share the same warning means that can be activated via the processing of the output signals from each one; and

at least one of said detectors is an optical camera capable of operation in the visible and/or infrared spectra,

wherein said first detector of said group covers a blind angle that extends in front of the vehicle and extends towards a first side zone and said second detector covers a zone that extends to the rear making longer a second side zone opposite said first side zone.

44. (Currently Amended) A device in accordance with claim 40, An active monitoring device within a safety perimeter of a motor vehicle, for the detection of moving objects or static obstacles within said safety perimeter, comprising:

a first detector which has a first detection angle and a first radius of action, which covers a first detection zone that includes at least part of a blind angle of said vehicle, where said first detector transmits input signals to at least one data processing device that generates output signals suitable to activate warning means for the driver;

at least a second detector, which has a second detection angle and a second radius of action, which covers a second detection zone and forms, with said first detector, a group, with said first and at least one second detectors cooperate in order to cover a combined detection zone of said blind angle, which is enlarged with

respect to that covered by the first detector and which forms a sector of said safety perimeter;

said first and at least one second detectors of said group share the same warning means that can be activated via the processing of the output signals from each one; and

at least one of said detectors is an optical camera capable of operation in the visible and/or infrared spectra,

wherein in addition to a first group having said first and at least one second detector, oriented towards a side lane adjacent to the vehicle, ~~it comprises~~further comprising a second group having first and second detectors, where said first detector covers a blind angle that extends in front of the vehicle and extends towards a first side zone and said second detector covers an area that extends in front of the vehicle towards a second zone located on the opposite side of the vehicle.

45. (Currently Amended) ~~A device in accordance with claim 40, An active monitoring device within a safety perimeter of a motor vehicle, for the detection of moving objects or static obstacles within said safety perimeter, comprising:~~

a first detector which has a first detection angle and a first radius of action, which covers a first detection zone that includes at least part of a blind angle of said vehicle, where said first detector transmits input signals to at least one data processing device that generates output signals suitable to activate warning means for the driver;

at least a second detector, which has a second detection angle and a second radius of action, which covers a second detection zone and forms, with said first detector, a group, with said first and at least one second detectors cooperate in order to cover a combined detection zone of said blind angle, which is enlarged with respect to that covered by the first detector and which forms a sector of said safety perimeter;

said first and at least one second detectors of said group share the same warning means that can be activated via the processing of the output signals from each one; and

at least one of said detectors is an optical camera capable of operation in the visible and/or infrared spectra,

wherein in addition to a first group having said first and at least one second detector on one side of the vehicle comprises a second group having first and second detectors, where a first detector of the second group covers a blind angle that extends in front of the vehicle and extends towards a first side zone and a second detector of said second group coincides with the first detector of the first group.

46. (Currently Amended) ~~A device in accordance with claim 38,~~ An active monitoring device within a safety perimeter of a motor vehicle, for the detection of moving objects or static obstacles within said safety perimeter, comprising:

a first detector which has a first detection angle and a first radius of action, which covers a first detection zone that includes at least part of a blind angle of said vehicle, where said first detector transmits input signals to at least one data processing device that generates output signals suitable to activate warning means for the driver;

at least a second detector, which has a second detection angle and a second radius of action, which covers a second detection zone and forms, with said first detector, a group, with said first and at least one second detectors cooperate in order to cover a combined detection zone of said blind angle, which is enlarged with respect to that covered by the first detector and which forms a sector of said safety perimeter;

said first and at least one second detectors of said group share the same warning means that can be activated via the processing of the output signals from each one; and

at least one of said detectors is an optical camera capable of operation in the visible and/or infrared spectra,

wherein said first detection angle is wider than said second angle and in that said second radius of action is larger than said first radius of action.

47. (Currently Amended) ~~A device in accordance with claim 38,~~ An active monitoring device within a safety perimeter of a motor vehicle, for the detection of moving objects or static obstacles within said safety perimeter, comprising:

a first detector which has a first detection angle and a first radius of action, which covers a first detection zone that includes at least part of a blind angle of said vehicle, where said first detector transmits input signals to at least one data processing device that generates output signals suitable to activate warning means for the driver;

at least a second detector, which has a second detection angle and a second radius of action, which covers a second detection zone and forms, with said first detector, a group, with said first and at least one second detectors cooperate in order to cover a combined detection zone of said blind angle, which is enlarged with respect to that covered by the first detector and which forms a sector of said safety perimeter;

said first and at least one second detectors of said group share the same warning means that can be activated via the processing of the output signals from each one; and

at least one of said detectors is an optical camera capable of operation in the visible and/or infrared spectra,

wherein the position of said second detector in the vehicle is such that it can detect a vehicle in said side lane at a distance from said motor vehicle that is greater than the radius of action of said first detector and in that it is intended to employ differential processing of the data captured by said first and second detectors as a function of their positions on the vehicle.

48. ~~(Previously Presented~~Currently Amended) ~~A device in accordance with claim 40, further comprising~~ An active monitoring device within a safety perimeter of a motor vehicle, for the detection of moving objects or static obstacles within said safety perimeter, comprising:

a first detector which has a first detection angle and a first radius of action, which covers a first detection zone that includes at least part of a blind angle of said vehicle, where said first detector transmits input signals to at least one data processing device that generates output signals suitable to activate warning means for the driver;

at least a second detector, which has a second detection angle and a second radius of action, which covers a second detection zone and forms, with said first

detector, a group, with said first and at least one second detectors cooperate in order to cover a combined detection zone of said blind angle, which is enlarged with respect to that covered by the first detector and which forms a sector of said safety perimeter;

said first and at least one second detectors of said group share the same warning means that can be activated via the processing of the output signals from each one;

at least one of said detectors is an optical camera capable of operation in the visible and/or infrared spectra; and

a third detector oriented towards a lane adjacent to said motor vehicle, which covers a detection zone that includes at least part of a blind angle of said vehicle, with said third detector being placed on a side of the vehicle opposite that of said first detector.

49. (Previously Presented) A device in accordance with claim 48, further comprising a fourth detector installed at the rear of said motor vehicle, or on a side zone, more rear than the cited third detector, on a side of the vehicle opposite that covered by said first detector and in that said third and fourth detectors cooperate to cover a first zone of an adjacent lane and a second zone that extends to the rear of the vehicle, operating as one of said groups having first and second detectors.

50. (Previously Presented) A device in accordance with claim 42, comprising two groups of a first and second detectors on opposite sides of the vehicle.

51. (Currently Amended) A device in accordance with claim 38; An active monitoring device within a safety perimeter of a motor vehicle, for the detection of moving objects or static obstacles within said safety perimeter, comprising:

a first detector which has a first detection angle and a first radius of action, which covers a first detection zone that includes at least part of a blind angle of said vehicle, where said first detector transmits input signals to at least one data processing device that generates output signals suitable to activate warning means for the driver;

at least a second detector, which has a second detection angle and a second radius of action, which covers a second detection zone and forms, with said first

detector, a group, with said first and at least one second detectors cooperate in order to cover a combined detection zone of said blind angle, which is enlarged with respect to that covered by the first detector and which forms a sector of said safety perimeter;

said first and at least one second detectors of said group share the same warning means that can be activated via the processing of the output signals from each one; and

at least one of said detectors is an optical camera capable of operation in the visible and/or infrared spectra.

wherein said first detector is installed in the body or structure of an outside rear-view mirror on said motor vehicle.

52. (Previously Presented) A device in accordance with claim 51, wherein said second detector is installed at the rear of said motor vehicle or in a side zone, more rear than the cited first detector.

53. (Previously Presented) A device in accordance with claim 41, wherein said group having a first and at least one second detector is installed in the body or structure of an outside rear-view mirror on said motor vehicle.

54. (Previously Presented) A device in accordance with claim 38, wherein said warning means receives a first combined signal, where said first combined signal is obtained by applying a "OR" logic function between said processed output signals corresponding to the first and second detector, of each group having one first and at least one second detector.

55. (Previously Presented) A device in accordance with claim 49, wherein said third and fourth detectors share the same warning means.

56. (Previously Presented) A device in accordance with claim 55, wherein said warning means receives a second combined signal, where said second combined signal is obtained by applying a "OR" logic function between said processed output.

57. (Previously Presented) A device in accordance with claim 38, wherein each of said detectors of said groups having at least two detectors that cooperate to cover a combined detection zone are directly connected to a corresponding data processing

device, forming part of a single integrated circuit or connected to said processor via a support or connection printed circuit.

58. (Previously Presented) A device in accordance with claim 49, wherein said second and fourth detectors comprise detection means for detecting the distortion of the earth's magnetic field and suitable for the detection of at least two of the three spatial components of a magnetic field.

59. (Previously Presented) A device in accordance with claim 49, wherein said second and fourth detectors are made up of a magnetic field sensor capable of generating electrical signals as a function of said magnetic field, and prepared to detect at least two of the three spatial components of a magnetic field and in that said sensors are installed symmetrically with respect to the vehicle's longitudinal axis, and are connected to an electronic circuit that calculates the difference of the signals.

60. (Previously Presented) A device in accordance with claim 49, wherein said second detector and/or said fourth detector are located at the rear of the vehicle or on a trailer of the same and which are only activated at a minimum speed of said motor vehicle.

61. (Previously Presented) A device in accordance with claim 49, wherein said group having a first and at least one second detector include a module for the detection of vehicles without any relative speed, in other words travelling at the same speed as the vehicle fitted with said detectors, within a preset margin of tolerance.

62. (Previously Presented) A device in accordance with claim 49, wherein only said first detector of each group is fitted with a module for the detection of vehicles without any relative speed.

63. (Previously Presented) A device in accordance with claim 49, wherein said second and fourth detectors are comprised of an optical camera and present detection areas that overlap at least partially and in that said device employs stereoscopic vision techniques to determine the approximate distance and relative speed of objects detected within said detection areas, when the vehicle in motion, or the height and/or movement of objects or the distances to them, when the vehicle is parked.

64. (Previously Presented) A device in accordance with claim 42, wherein said first and second detectors are comprised of an optical camera and present detection areas that overlap at least partially and in that said device employs stereoscopic vision techniques to determine the height and/or movement of objects located within said detection areas when the vehicle is parked.

65. (Previously Presented) A device in accordance with claim 49, wherein the interconnection between at least part of the cited detectors he means of processing their input signals and the cited warning means is performed by radiofrequency communications.

66. (Previously Presented) A device in accordance with claim 38 further comprising means to display an image of at least part of the field covered by the cited cameras.

67. (Previously Presented) A device in accordance with claim 49, wherein all the detector devices comprise optical cameras working in the visible light and/or infrared spectra.

68. (Cancelled)

69. (Currently Amended) A method in accordance with claim ~~68~~70, wherein said process comprises a simultaneous, separate treatment of the input signals provided by said first detector and second detector.

70. (Currently Amended) ~~A method in accordance with claim 68, An active monitoring method within a safety perimeter of a motor vehicle for the detection of moving objects or static obstacles in an area of risk close to said comprising the steps of:~~

acquiring data from at least two differentiated detection zones within said safety perimeter by means of a group comprising a first detector that covers a first zone and at least one second detector that covers a second zone which is contiguous or partly superposed to said first zone and which extends it, defining a joint detection zone, which includes a sector of said safety perimeter, with at least one of said detectors being an optical camera suitable for working in the visible light and/or infrared spectra;

processing the signals acquired by at least two detectors; and

generating warning signals in the case of detecting an object involving risk or an insurmountable obstacle, existing in said joint detection zone, applying a "OR" logic function to said processed signals, corresponding to said first detector and to said second detector,

wherein a differentiated processing of the data captured by each detector is carried out as a function of the position occupied by each of said groups of detectors on the vehicle.

71. (Currently Amended) ~~A method in accordance with claim 68;~~ An active monitoring method within a safety perimeter of a motor vehicle for the detection of moving objects or static obstacles in an area of risk close to said comprising the steps of:

acquiring data from at least two differentiated detection zones within said safety perimeter by means of a group comprising a first detector that covers a first zone and at least one second detector that covers a second zone which is contiguous or partly superposed to said first zone and which extends it, defining a joint detection zone, which includes a sector of said safety perimeter, with at least one of said detectors being an optical camera suitable for working in the visible light and/or infrared spectra;

processing the signals acquired by at least two detectors; and
generating warning signals in the case of detecting an object involving risk or an insurmountable obstacle, existing in said joint detection zone, applying a "OR" logic function to said processed signals, corresponding to said first detector and to said second detector.

wherein each of the cited detectors is capable of being activated or not, of being ignored, or of carrying out differential processing of the captured data as a function of the vehicle speed.

72. (Currently Amended) A method in accordance with claim 68, wherein it comprises using several detector groups, each comprising of a first and at least one second detector employed to cover several sectors of said safety perimeter, with the detectors sharing the same warning means, specific for said group.

73. (New) A method in accordance with claim 71, wherein it comprises using several detector groups, each comprising of a first and at least one second detector employed to cover several sectors of said safety perimeter, with the detectors sharing the same warning means, specific for said group.